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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,582	03/10/2004	Jian-Ku Shang	ILL04-029-US	4720
43320	7590	06/01/2006		
EVAN LAW GROUP LLC 566 WEST ADAMS, SUITE 350 CHICAGO, IL 60661			EXAMINER GRAY, JILL M	
			ART UNIT	PAPER NUMBER

1774

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/797,582	Applicant(s) SHANG ET AL.	
	Examiner Jill M. Gray	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 1-10, 13-15 and 22-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11, 12, 16-21 and 28-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/1/05, 1/22/04, 8/22/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10 and 13-14, drawn to a method, classified in class 264, subclass 430.
 - II. Claims 11-12, 16-21, and 28-31, drawn to a ceramic fiber, classified in class 428, subclass 368.
 - III. Claims 15 and 24, drawn to a photochemical reactor, classified in class 422, subclass 129.
 - IV. Claim 22, drawn to method for producing radical species, classified in class 502, subclass 100+.
 - V. Claim 23, drawn to method for purifying air, classified in class 210, subclass 600+.
 - VI. Claims 25-27, drawn to method, classified in class 264, subclass 430+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and VI and II are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by a materially different process such as coating a glass or mineral fiber with a ceramic material.

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3. Inventions I, VI and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the reactor of group III is used to practice a materially different process than that of Groups I and VI, said Groups being drawn to method of making fibers.

4. Inventions II and IV and V are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in a materially different product such as in the formation of ceramic tiles.

5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

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7. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Mr. Rauch on February 23, 2006 a provisional election was made with traverse to prosecute the invention of Group II, claims 11-12, 16-21, and 28-31. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-10, 13-15, and 22-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Remarks

Claims 11 and 12 are dependent upon subject matter drawn to a non-elected invention. It is suggested that these claims be amended accordingly.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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11. Claims 16-21 and 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, claims 16, 19, 28, and 29 are indefinite because it is not clear whether the ceramic coating per se has the requisite BET surface area or it this refers to the coated fiber.

Claims 17 and 18 are indefinite for the reasons stated above in claim 16.

Claims 20 and 30 are indefinite because these claims set forth ceramic coated fibers whereas claim 16 only provides for a fiber, not plural fibers. Accordingly, it is not clear whether the ceramic comprises 10 to 90% by weight of the coated fiber surface or if there is a fibrous substrate comprising plural fibers, wherein said fibrous substrate is coated with a ceramic.

Claims 21 and 31 are indefinite because it is not clear what further comprises silver and/or palladium. It is not clear whether these metals are part of the ceramic coating or the fiber per se.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Publication EP 1,205,244 A1 (the publication).

Claims 11 and 12 are product-by-process claims. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, the examiner has interpreted claims 11 and 12 as being a ceramic coated fiber.

The publication teaches ceramic coated fiber. See page 15, [0134] and [0135]. Therefore, the publication anticipates the invention as claimed in present claims 11 and 12.

14. Claims 11-12 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by “Preparation and Characterization of TiO_2 fiber and its photocatalytic properties (hereinafter Nam).

Nam teaches a fiber having a ceramic coating thereon, per claims 11 and 12, wherein said coating is TiO_2 as required by claims 16-18. See pages 2 and 4. The BET surface area is approximately $55 \pm 15 \text{ m}^2/\text{g}$, which anticipates the surface area as claimed in claims 16 and 19. See page 3.

Therefore, the teachings of Nam anticipate the invention as claimed in present claims 11-12 and 16-19.

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15. Claims 11-12 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by "Preparation of TiO₂ Fiber and Its Photocatalytic Properties" (hereinafter Kim).

Kim teaches a fiber having a ceramic coating thereon, per claims 11 and 12, wherein said coating is TiO₂ having an anatase structure, per claims 16-18. In addition, Kim teaches a high surface area of 420.24 m²/g.

Therefore, the prior teachings of Kim anticipate the invention as claimed in present claims 11-12 and 16-19.

16. Claims 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Great Britain Publication GB 2,155,458 A (Nelson).

Nelson teaches a ceramic coated fiber, as required by claims 11-12. See abstract. Hence, Nelson anticipates the invention as claimed in present claims 11-12.

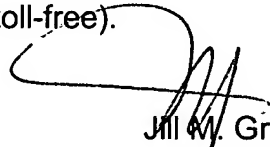
No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jill M. Gray
Primary Examiner
Art Unit 1774

jmg